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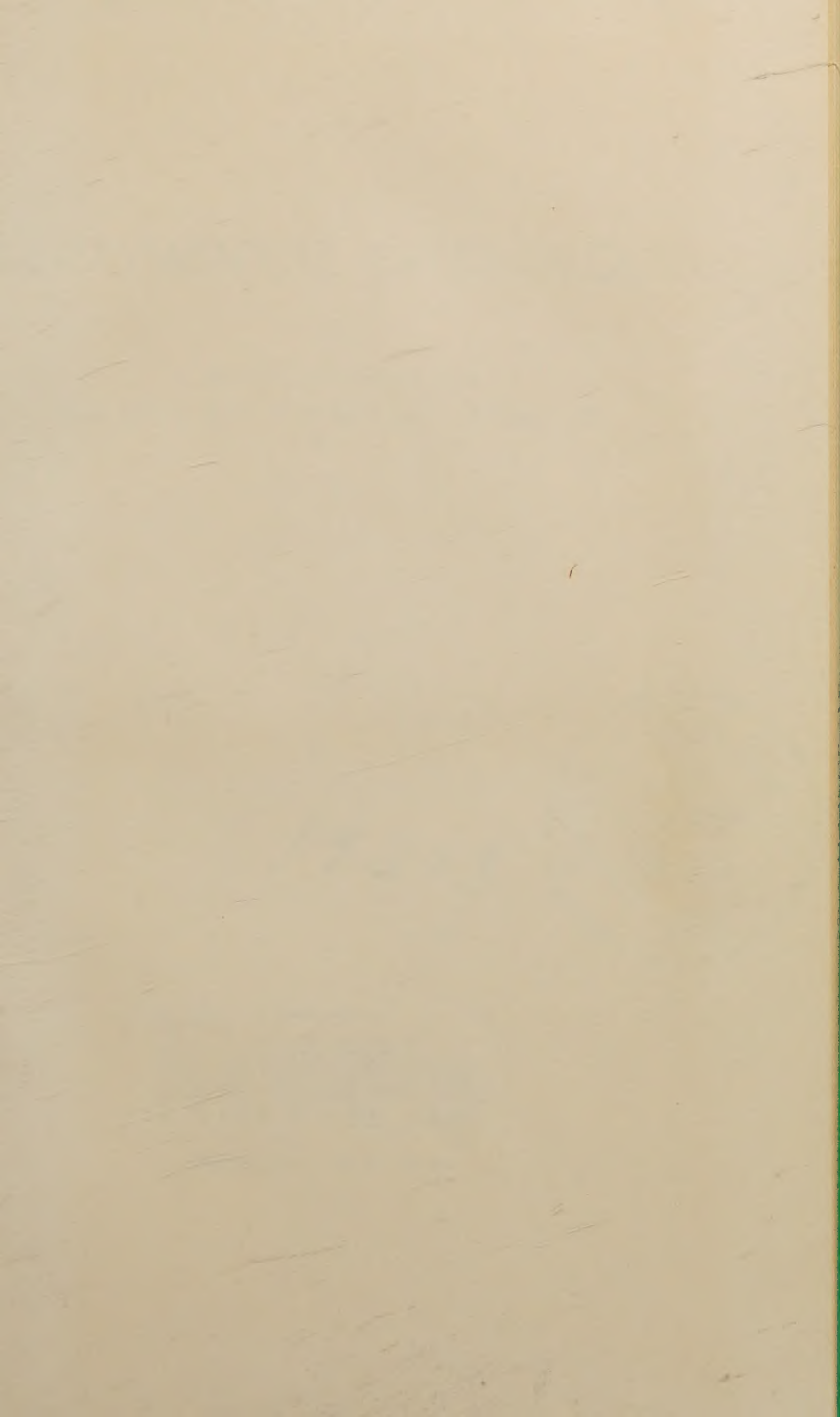
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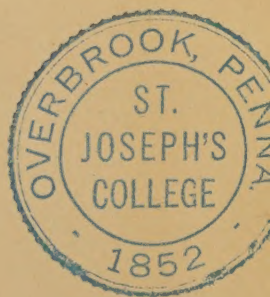



FUNDAMENTAL PSYCHOLOGY

A DIGEST OF LECTURES
FOR STUDENTS OF FORDHAM UNIVERSITY

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DIGEST OF LECTURES ON PSYCHOLOGY

INTRODUCTION

DEFINITION

Nominal: the science of the study of the soul;

Real: the science of living bodies in their ultimate causes in so far as these can be known by the natural light of reason.

OBJECT

Material: living bodies:

Formal: the soul in so far as it is an element of living bodies.

OTHER SCIENCES CLOSELY RELATED TO PSYCHOLOGY

Organic Chemistry, Histology, Anatomy, Physiology, Biology, Botany and Zoology. Psychology differs from all these inasmuch as it alone has for formal object the soul in its ultimate causes.

Psychology and the cognate sciences just enumerated supplement one another, thus furnishing us with a complete knowledge of living bodies. Psychology borrows much of its data from these other sciences and then proceeds to investigate these vital phenomena in their intrinsic nature and ultimate source.

SOURCES

- i. **Introspection** or reflective observation of our own mental states.
This is the principal as well as the ultimate source of all knowledge of mental facts.
- ii. **Immediate or mediate observation of other living bodies.** Thus we may learn much from the internal experience of other observers communicated through language. So likewise the study of the human soul as exhibited in different periods of life, as embodied in various languages and literatures, as revealed in different races and grades of civilization, as manifested in abnormal or pathological conditions such as dreams, hypnotism and forms of insanity, adds to the science of psychology.
- iii. **Psychic experiments** performed under favorable conditions.

METHOD

In studying psychology, the only legitimate method is that which combines the experimental and the

rational, i. e., which includes accurate observation of vital phenomena and logical inference from such data.

- i. Psychophysics or psychomechanics are pure physiology. These pretend to be exclusively empirical, and to shun studiously all speculation.
- ii. Methods entirely aprioristic which completely neglect the data of experience, and proceed along purely aprioristic lines.

DIVISION

Empirical Psychology, which chiefly (though not exclusively) deals with such vital phenomena as fall under our immediate experience.

Rational Psychology, which devotes itself largely (though not exclusively) to an investigation of the intrinsic nature of the faculties whence vital phenomena proceed, as well as of the soul itself.

N.B. At present we are treating of rational psychology which is subdivided as follows:

- i. Life in general;
- ii. Vegetative life;
- iii. Sensitive life;
- iv. Intellectual life.

HISTORY OF PSYCHOLOGY

This subject is treated in the History of Philosophy. For a brief summary, Cf. Cath. Ency. s.v. Psychology, sect. i.

REFERENCES for topics mentioned above:

Cath. Encycl. s.v. Psychology;
Maher, Psychology, ch. i, ii.

LIFE IN GENERAL

DIVISION

- I. **The Essence of Life:** What is a living body?
- II. **The Primary Kinds of Life:** How are living bodies primarily divided?
- III. **The Vital Principle:** What is the radical difference between a living and a non-living body?
- IV. **The Ultimate Origin of life:** how did living bodies originate?
- V. **The Origin of Species in the Organic World:** what about Evolution?

THE ESSENCE OF LIFE

THESIS I.

Life is that perfection in a being in virtue of which it is capable of immanent action.

ST. Q.

What is the essential difference between a living and a non-living being: what really is a living being, and precisely how is it distinguished fundamentally from a non-living being? Such is the question discussed in the present thesis.

We answer that a living being is one that is capable of immanent action, and in consequence, that life is that perfection in a being in virtue of which it is capable of immanent action. This we shall prove presently.

IMMANENT ACTION is that action which terminates within the eliciting subject. It may also be described as that by which a being **moves itself**, understanding motion to include besides change of locality, all alterations in quality or quantity, and all transition from potentiality to actuality. Clearly, **self-movement** of a being is that effected by a principle intrinsic to the nature of the being, though it may be excited or stimulated from without.

Immanent action is contrasted with **transient action**, of which the effect passes to a being **distinct from the agent**.

An action is said to be **immanent per se** (i. e. of its very nature) if by its very nature it terminates **within the agent**; e. g. nutrition, thought.

An action is said to be **immanent per accidens** if the action, by its very nature, could equally well terminate in another being distinct from the agent, though as a fact it happens to have its term within the agent; e. g. to strike **oneself**.

N. B. i. An action which is truly immanent per se, may at the same time also proceed from an extrinsic co-efficient cause; e. g. all our vital acts are immanent per se, and still God concurs in their production.

ii. In our present thesis, there is question of action which is immanent per se. Hence a **vital action** and an **action immanent per se** are **synonymous**; and a **living being** is one which of its own nature is capable of such action. In consequence, spontaneity and immanence are the essential characteristics of vital acts, as opposed to the inertia and transient activity of non-living bodies.

ADVERSARIES

Many Materialists: Spencer; Wundt, Psychology; Richet, Modern Animal Psychology (on index).

PROOF OF THESIS

(Capacity for immanent action is the only perfection found in every living being, and never found in non-living beings.) m

That perfection which **alone** is found in **every** living being, and **only** in living being, is life.

But the capacity for immanent action is that perfection which alone is found in every living being, and only in living beings. **Therefore**, etc.

Major is obvious: since life is found in every living being, and only in living beings, clearly it must consist in some perfection proper to **every** living being, and to them **only**. If **only one** such perfection is thus common to all things, and to them alone, undoubtedly it will constitute the essence of living beings.

Minor is readily manifest from induction:

✓ a) Capacity for immanent action is **common to every living being**, since every living thing can exercise either acts of nutrition or of growth or of reproduction or of perception or of appetency, and the only note common to all these actions is **immanence**.

b) Capacity for immanent action is **never found in non-living beings**, as is clear from daily experiences, and from the universal manner of speaking of living and non-living bodies. Thus we say a thing is alive if it shows signs of self-movement, whereas if a body gives not the least indication of immanent action we unhesitatingly pronounce it non-living.

c) Capacity for immanent action is **that alone which is common to every living being and to no other**. Other points of divergence between living and non-living things **are not exclusively proper** to either class. Thus the figure, structure and chemical composition of a living being may be found in a body which has just died.

POINTS TO BE WELL NOTED FOR A FULLER UNDERSTANDING OF THE THESIS

1. We admit that there are many points of difference between living and non-living beings, but we claim that the **essential** and **fundamental** distinction is the capacity for immanent action.

2. Falling bodies, automobiles, elastic bodies, condensed or rarefied bodies are not self-moving, but are moved by an extrinsic cause.

3. The actions and interactions that take place between the molecules of a body are transient—i. e. they pass from one molecule to another.

THE PRIMARY GRADES OF LIFE

THESIS II.

The primary grades of life are vegetative, sentient and intellectual.

Primary grade—which has an end proper to itself.

Independent—which are so different that one however perfect can not become the lowest of the next one.
It is the question of kind and not a degree.

ST. Q.

We are familiar with various grades of life in the world around us. In our present thesis we are speaking only of the primary (i. e., essentially distinct) grades. Hence we are not discussing either the species of living beings, or the accidental grades of life under each species.

We are speaking, not of vital actions, but of the primary grades of living beings. We investigate the various vital phenomena in order thus to reach the primary grades of life itself.

Vegetative Life is the capacity for immanent actions of nutrition, growth, and reproduction.

Sentient Life is the capacity of perceiving material things in a material way.

Intellectual Life is the capacity of perceiving spiritual and corporeal objects in an immaterial way.

VEGETATIVE: a being has vegetative life if by its nature it is capable only of **nutrition, growth and reproduction.**

SENTIENT: a being has sentient life if by its nature it is capable of **perception and appetency regarding singular, corporeal objects.**

INTELLECTUAL: a being has intellectual life if by its nature it is capable of a **spiritual perception and appetency regarding corporeal and spiritual objects.**

PROOF OF THESIS

Wherever we find **essential grades of immanent activity**, there we have the primary grades of life.

But in vegetative, sentient and intellectual life, we find **essential grades of immanent activity.** Therefore, etc.

Major is manifest from thesis I.

Minor—There are three essentially different ways in which self motion may proceed from an agent:

- a) Without cognition of any kind on the part of the living agent;
- b) the self-movement may imply cognition and appetency of individual, corporeal objects on the part of the living agent, but without liberty, or the power of consciously determining the end or purpose of its vital actions;
- c) Finally, the living agent may be capable of cognition and appetency regarding corporeal and spiritual objects, together with the capacity of determining the purpose of its actions.

But these three grades are found in vegetative, sentient and intellectual life. Therefore, etc.

THE VITAL PRINCIPLE THESIS III.

In every living body there exists a prime principle of life, essentially different from matter and its forces.

ST. Q.

What is the radical difference between a living and an inorganic body? Why is one living, the other non-living? Our present thesis answers that this radical distinction is derived from the presence of a vital principle in living bodies, which principle differs essentially from brute matter and all its forces.

IN EVERY LIVING BODY:—

The question so much debated between Mechanists and Vitalists is this: are living bodies mere complex pieces of machinery, or does there exist in each one of them something essentially different from matter and all its forces. Our present thesis deals only with this very important question. Obviously, living spiritual beings possess a principle of life essentially different from matter, since they are in no sense made up of matter.

PRIME PRINCIPLES OF LIFE:—

The various faculties from which vital actions proceed are known as the proximate principles of vital phenomena. These faculties will be discussed later. At present we are concerned, not about these faculties, but about the prime or last principle which, in the order of

creatures, ultimately accounts for vital operations. This principle is the ultimate formal intrinsic cause of all vital activity.

ESSENTIALLY DIFFERENT FROM MATTER AND ITS FORCES:—

We readily allow that in living bodies there is matter as well as the fact that purely physical and chemical operations occur in living bodies. But we maintain that vital phenomena cannot be rationally conceived as the outcome of any mere collection of material particles, that they are inexplicable by mere complexity of machinery, or as a result merely of the physical and chemical properties of matter. We assert the existence in every living body of an intrinsic agency, energy or power, which unifies the multiplicity of material parts, guides and elevates the various processes, dominates the physical and chemical operations, controls the tendencies of the constituents of living bodies and regulates and directs and energizes the whole series of changes involved in the nutrition, growth and reproduction of living bodies.

Such a principle, commonly called the **vital principle**, differs **essentially** from matter and its forces, i. e., it pertains to another and a higher order, so that living bodies have in them a principle which in no way—not even inchoately—is found in inorganic bodies.

Our thesis deals with **every** living body.

ADVERSARIES:—Materialists who attempt to give a purely mechanistic explanation.

PROOF OF THESIS

(There is an **essential difference between living and non-living bodies** as is evidenced by the **essential difference in their stable modes of action**.)

If living bodies differ **essentially** from non-living, there exists in every living body a prime principle of life, **essentially different from matter and its forces**.

But living bodies differ **essentially** from non-living. Therefore, etc.

Major is evident; otherwise there would be no explanation for the essential difference.

Minor:—Those bodies whose **stable modes of activity** are **essentially different**, differ **essentially**.

But the stable modes of activity of living and non-living bodies differ essentially. Therefore, etc.

Major: There is always a proportion between a being's actions and its essence, because the essence is the ultimate source of the actions. And amid the myriad changes which are constantly taking place in bodies, especially in living bodies, the essence alone remains stable.

Minor: In every living body, even in those of the lowest grade of life, there are the vital actions of **nutrition, growth and reproduction**; no such phenomena, even in an incipient degree, are observed or even possible in inorganic bodies.

Cf. Maher, *Psychol.* (edit. 7), pp. 547, n. 2—551; Windle, *What is Life*, Ch. 2, 3, 5, 7, 8; *Catholic Encycl.* s.v. *Life*.

NOTANDA

1. Though we may not at present know precisely every single effect that can be produced by matter and its forces, we do know enough about it to conclude with certainty that it can never rationally account for vital phenomena. We have established with certainty the essential difference between living and non-living bodies; we have seen that living bodies possess all that is found in non-living bodies, plus the vital principle. In consequence, in virtue of the unassailable principle of causality, we are certain that mere matter and its forces cannot produce vital actions.

2. Though the vital principle in living bodies is really distinct from the matter of those same bodies, still the vital principle and matter are united substantially into one composite substance. In consequence, the vital actions are truly immanent.

3. The intrinsic nature of the vital principle in the various classes of organic beings will be examined in detail later.

4. The actions of crystals somewhat resemble the vital operations of living bodies. But the resemblance is very imperfect.

5. The admission of a vital principle in every living body in no way conflicts with the principle of the conservation of energy; this latter principle refers only to the world of brute matter and its forces.

THE ULTIMATE ORIGIN OF LIVING BODIES. TWO DISTINCT QUESTIONS:

I. The ultimate origin of living bodies;

II. The origin of the various species of living bodies
At present, we are concerned only with the first question.

THESIS IV.

Spontaneous generation, properly so-called, is impossible. The hypothesis of the *rationes seminales*, though not intrinsically repugnant, is in no sense probable. Hence the ultimate origin of living bodies must be ascribed to the special intervention of God.

ST. Q.

Elsewhere in philosophy, it is proved that God is the first efficient cause of all things distinct from Himself. Hence our present question is this: in the order of second causes, could inorganic matter have been the efficient cause of the first living bodies? Does a living being always originate from a living being (Biogenesis), or can dead matter give rise to inferior forms of life (Abiogenesis)? Granted that this second supposition is impossible, how are we to explain the origin of the first living beings on this globe?

SPONTANEOUS GENERATION means the production of a living being from inorganic matter. In the strict sense, it implies that production of a living being from inorganic matter by means of the mere forces of dead matter.

SPECIAL INTERVENTION OF GOD:—

Those who teach that the first living bodies owed their origin to the divine intervention are not agreed in their explanation of the nature of such intervention.

i. Some maintain that in the beginning of time, God created not only inorganic matter, but also certain seeds or sperms, which afterwards in proper environment evolved into fully organized living bodies.

We answer a) This view is utterly unproved, and it rests on no solid probability: (b) Due to the early condition of the earth, e. g. the enormous heat, those seeds could not have lived naturally. And constant miracles are not to be postulated when another and a natural explanation is ready at hand.

ii. Others believed that God at the very time when He created inorganic matter deposited in the dead matter a peculiar force or energy, which, under favorable conditions, would enable the inorganic matter to produce living bodies. This peculiar force or energy was known as the *Rationes Seminales*. It is to be noted that these authors did not consider this peculiar force as a con-

natural property of brute matter; rather it was something superadded over and above the mere forces proper to matter as such.

We answer in the second part of the present thesis.

iii. The commonly accepted teaching of Catholic philosophers is as follows:

Living beings were not produced till the earth had reached such conditions as were fitted for living bodies. But how were they produced? By the action of God. Did God create them? Not precisely. Since the earliest living bodies belonged to the vegetative or animal kingdom, and since their souls were not spiritual (as we shall see later), it was not necessary that God should create them. He educed them from the obediential potency of matter, just as in the generation of plants and animals the souls are educed from the potency of matter under the vital activity of the parents.

PROOF OF THESIS

Part I. If in every living body there exists a **vital principle essentially different from and superior to matter** and its forces, spontaneous generation properly so-called is impossible.

But in every living body there exists, etc.

Therefore, etc.

Major is clear; otherwise the effect would be more perfect than its cause.

Minor is manifest from Thesis III.

Part II. That hypothesis is not probable **which rests on no solid argument.**

Minor: In Support of this theory no solid argument either from divine revelation or from natural science can be advanced. Moreover, the peculiar force deposited in dead matter would necessarily postulate a certain degree of organization; otherwise it would remain utterly inactive. But no such organization exists in dead matter.

Part III. Follows as Corollary from the first and second.
Scholion

When Aristotle and many of the Scholastics admit spontaneous generation, they are using the words in quite another sense than that explained above. Due to the lack of exact biological science, they fancied that certain lower animals, e. g. worms,

might originate from dissimilar organisms, either living or dead, but due to the causal influx of higher agencies.

THE ORIGIN OF SPECIES IN THE ORGANIC WORLD SPECIES, VARIETY, TYPE.

For our present purpose, we shall begin with the concept of species as described by natural scientists. It is the collection of individuals which, agreeing in the same organic type, can indefinitely propagate the series of individuals. Hence with natural Scientists, we accept two things as characteristic of any species; i) the individuals must be **essentially** similar in structure and function; ii) the individuals must be capable of generating offspring **indefinitely**, i.e. the collection must be capable of **indefinite perpetuation by natural generation**.

We said that individuals of the same species must be essentially similar in structure. This does not exclude notable secondary or accidental differences of structure. There may be some well-marked secondary differences in many individuals of the same species, in which case these individuals constitute what is known as a variety. It may even happen that the secondary differences of certain individuals are **transmitted constantly by generation**, in which case such individuals make up what is called a **TYPE** (stirps), stock, race or family.

At times these different stocks or types may be mistaken for different species. How may we determine whether they are different types of the same species, or different species? By applying the second characteristic already mentioned: if individuals of various types are capable of indefinite generation, they belong to the same species, though not to the same type of that species.

OPINIONS RELATIVE TO THE ORIGIN OF SPECIES IN THE ORGANIC WORLD.

Broadly speaking there are two.

I. **The Theory of Stability or Constancy:** Species are essentially immutable; the first beings of each species were produced by God at the period of the world's history when the earth was prepared to receive them.

II. **The Theory of Descent or of Transformism or of Evolution:** Many or even all organic species have been derived from one common parental stock. It includes several varying and at times conflicting systems.

CHIEF SYSTEMS OF EVOLUTION

Lamarck's Theory (1744-1829)

i. Each individual living being, due to active adaptation to environment, departs somewhat from the structure and functions of its parents.

ii. The individual differences thus acquired are transmitted by generation; the offspring in like manner develops its individual differences and transmits them to its progeny.

iii. New environments beget new necessities for individuals; new necessities beget new desires; new desires produce new faculties, and finally new faculties call forth new organs adapted to such new faculties. These new organs are developed by use, whereas their disuse impairs the organs, and eventually destroys them completely.

iv. Evolution proceeds according to the order ordained by God; it extends to man exclusively. Lamarck admits an intrinsic principle of finality, which accounts for and controls the evolution; the living beings' adaption of environment is active, and done under the guidance of the intrinsic principle of finality.

Darwin's Theory (1809-1882)

i. All living species are derived from a few primitive types by means of a very gradual evolution. At first Darwin did not extend his evolution to include man; later he did include man, and even man's soul. Darwin's mind about the initial intervention of God is not clear.

ii. Living beings are susceptible of **indefinite variation**, and nature by its process of natural selection employs and controls this power of variation.

iii. **Natural Selection** is the unique and universal means whereby, from a few primitive types, has evolved gradually the multiplicity of species manifest in the world today.

iv. **Natural Selection** is the logical outcome of the **Struggle for Existence**; this latter results "in the survival of the fittest."

v. The fittest survivors successively transmit to their offspring all the good and desirable qualities which they had acquired.

According to Darwin, the evolution of living beings is not directed by any intrinsic principle of finality but by the process of natural selection, which in turn is due to the Struggle for Existence. Darwin accepted as secondary causes of transformation Lamarck's principle of adaptation to environment together with the use and disuse of organs. From Saint-

Hilaire Darwin borrowed the principle of Correlative Variation, namely, when one portion of a living being varies, the remaining parts should also vary proportionately; and if one part acquires an extraordinary increment, some other organ or part should diminish proportionately, or even entirely disappear.

Neo-Darwinism

Some of the modern followers of Darwin have greatly modified his theory. While they generally retain his principle of natural selection, they reject many, if not all, of his other tenets.

Neo-Lamarckism

In like manner, many of the disciples of Lamarck have departed widely from the master's teaching.

Generally they retain the transmission by generation of acquired characteristics and ascribe the chief part in a being's evolution to the influence of environment. As a rule, they reject Darwin's theory of natural selection or at least assign to it a very minor part in their explanation of evolution.

Some of the later followers of Lamarck deny in living beings any intrinsic principle of finality and hence propose a purely materialistic solution of the problem of life. Others, however, among them are true vitalists, maintaining in each living organism an intrinsic principle of finality essentially distinct from matter and its forces.

Saltatory Evolution

This theory maintains the transformation of species, within certain limits, through the agency of **sudden** changes, as opposed to the gradual, protracted changes included in the systems thus far outlined. No intermediate forms or grades of life between species are allowed. Generally those who accept this view of evolution admit in each living being a vital principle distinct essentially from matter and its forces and **intrinsically directive** of all its vital activities.

Cf. Mivart, *Genesis of Species*; De Vries, Bateson, Morgan, Reinke and others subscribe to this opinion. About Haeckel's *Monistic Evolution*, Cf. Muckermann, S.J., *Attitude of Catholics towards Evolution*, chap. iii.

THESIS V.

Every system of evolution i) which either excludes the Creator, ii) or which teaches that inorganic beings by their own native powers have evolved into organic bodies, iii) or

which denies a principle of intrinsic finality in living bodies, iv) or finally which maintains that man's soul has descended from the brute, is intrinsically impossible.

ST. Q. As was said above, different and, at times, contradictory systems of evolution have been put forward at various times. In our present thesis we reject summarily as **intrinsically impossible** some of these systems. Later, we shall deal with the remaining ones.

PROOF OF THESIS

Part I. Evident from Cosmology and Natural Theology where the fact of creation is established, as well as from Thesis IV. pp. 10-11.

Part II. Evident from Thesis III. pp. 7-9, and from Thesis IV. pp. 11.

Part III. Evident from Thesis III where we proved that in every living being there exists a vital principle essentially distinct from matter and its forces, which directs all the being's vital activities to its proper development and perfection and to the propagation of the species.

Part IV. Later on in psychology it will be proved that the human soul can originate only by creation. Hence it can not descend from the brute.

SCHOLIA. I. Darwinism for many reasons must be rejected as false.

- a) It furnishes no sufficient explanation for the evolution which it proclaims.
- b) It is unsupported by facts:
- c) It openly conflicts with well ascertained data of experience, as well as with some of the conclusions of geology and palæontology;
- d) In his vain attempt to bolster up his pet theory Darwin makes gratuitous and chimerical assumptions.
- e) Finally by his denial of intrinsic finality in living bodies Darwin renders his theory an impossibility.

II. It is false to say that even man's body is descended from the brute:

- a) Because in structure and organization the human body differs most remarkably from the bodies of all brute animals, a

fact which would be left unexplained if we were to accept the evolution of the human body.

- b) If the human body has been evolved **gradually** we should find in the earth's strata the intermediate grades or forms of life. No such intermediate forms, or missing links as they are called, can anywhere be discovered. Nor could man's body have sprung from the brute by means of saltatory evolution for the effect cannot be more perfect than its cause.

III. We admit the intrinsic possibility of evolution whether gradual or saltatory **provided** (a) the initial influence of God in the production of the first living beings is granted: and (b) **provided** that in each living body there is an active principle capable under proper conditions of developing into higher forms of life. Thus far however even such a modified form of evolution **has not been established** as a historical fact.

References:—Cath. Encycl. s.v. Evolution; Muckermann, S.J., Attitude of Catholics towards Evolution; Wasmann, S.J., Modern Biology and the Theory of Evolution; Gerard, S.J., The Old Riddle and the Newest Answer; Franck, S.J., Theory of Evolution; Shallo, S.J., Scholastic Philosophy.

VEGETATIVE LIFE

THESIS VI.

Plants are endowed with vegetative but not with sentient life.

ST. Q.

Some have denied that plants are **really living** organisms; others have gone to the other extreme by claiming that plants truly exercise **sensation**.

PLANT may be described as a body which generally adheres to the ground, and which is made up of various parts, the chief of which are the root, trunk with its different branches, leaves and flowers. Later we shall define Plant **scientifically**.

VEGETATIVE LIFE—Cf. Thesis II. p. 6

This is the lowest and, as will be proved, in the visible world the most **universal** grade of life. The lowest as was shown in Thesis II. p. 6., the most **universal** as being common to plants, brute animals and men. The chief functions of vegetative life are **nutrition, growth and reproduction.**

NUTRITION is that operation or process by which a living body converts external substances into **its own** for the purpose of self-conservation. It implies various actions on the part of the living organism:

- a) **absorption** of the external substances by means of the roots and leaves;
- b) **digestion** or the preparation of these raw materials by various elaborate chemical processes;
- c) **circulation** of the food thus prepared throughout the organism;
- d) **respiration** or breathing which consists in an exchange of gases (free oxygen and carbon dioxide) between the blood and the air, carried on through a delicate membrane lying between them;
- e) **excretion** or the removal from the body of matter which has really formed a part of its substance but has been used up and is no longer alive. Such waste matter ultimately results from the breaking down of living tissue.
- f) **assimilation**, intussusception or anabolism by which is meant the conversion of the food into the living substance of the organism.

This last is strictly the act of nutrition or the **vital** act; the other steps are only the prelude to **assimilation.** Cf. Sedgwick and Wilson, General Biology.

GROWTH or increase is that vital operation through which the living organism builds up its complete organical structure according to a definite morphological type out of the nutriment assimilated. Growth takes place throughout the living organism, by intussusception, not by the addition of superficial layers (accretion) as in the case of inorganic bodies. Cf. Sedgwick and Wilson, op. cit. p. 165.

REPRODUCTION is that vital process by which the living organism produces out of its own living substance a **germ or seed** capable of evolving itself, under fit con-

ditions, into a new living organism similar in specific nature to the parent. **THIS ACTION** is vital up to the moment when the seed or germ is separated from the parent.

SENSATION is that action by which a living body represents to itself individual corporeal objects in an extended manner. More about this in subsequent thesis.

PROOF OF THESIS

(A plant is **one** being and it truly exercises immanent activity.)

Part I. If a plant by its nature is **one being** and if it exercises vegetable actions which of their very nature are **immanent**, plants are endowed with **vegetative** life. But a plant by its nature is **one being**, and it exercises, etc., therefore.
Major: is evident.

Minor: i) A plant by its nature is **one thing**, for all the parts, of their very nature, direct their manifold activities to one and the same common end, namely, the perfection and propagation of the entire plant. This is manifest in nutrition, growth and reproduction. Now this unity of finality—this unity of activity necessarily supposes the **natural unity of the plant**, since the nature is the source and ultimate font of a being's activities. If more than one nature were admitted in each plant, we could never account for the unity of the plant's activity.

ii) A plant exercises vegetable actions which of their very nature are immanent as is clear in nutrition, growth and reproduction.

(Plants have no organs of sensation, give no signs of sensation, even manifest that they have no sensation)

Part II. If plants have no organs of sensation, if they give no indications of having sensation, finally

if they give unmistakable signs that they do not exercise sensation; surely plants are not endowed with sentient life.

But plants have no organs of sensation, nor do they give any indications of having sensation, finally they give unmistakable, etc. Therefore.

- Minor: i) Clear from observation that plants have no external organs adapted to sensation. Moreover they have no nervous system, and without it they cannot have sensation.
- ii) If plants had sensation, they would give at least some signs of pain, pleasure, fear, anger, etc., since some sensations would necessarily be pleasing to them, others displeasing. But plants never give any such signs.
- iii) In a living being which exercises acts of sensation we observe that certain actions are irregular and intermittent. Such variety is due to presence of various sensations. In plants, on the contrary all the actions are perfectly constant and uniform, indicating clearly the absence of all sensation.

SCHOLIA

- i) We may now scientifically define a plant as a living body endowed with vegetative life alone.
- ii) In plants we readily admit a great variety of physical and chemical actions. But over and above these we say that the plant truly exercises immanent activity; hence it is really a living organism, not a mere machine. The physical and chemical forces at work can account neither for the organism itself nor for its vital activity.
- iii) The motions of the sensitive plant as well as those of other plants are due to physical contractility of fibre, etc., under the influence of heat, light, friction, etc. Such motions have not that irregularity, intermittence and arbitrary change of direction which indicate spontaneous local motion.

- iv) It may happen in a very rare case, that there is doubt whether or not a living body is sentient or merely vegetative. To determine whether or not, in a particular case, a living being is sentient or merely vegetative, is outside the province of the psychologist. Other branches of science pursue such investigations. We merely say that if such a living being truly exercises sensation it is an animal, not a mere plant.

THESIS VII.

The plant soul is material, essentially simple, integrally composite.

ST. Q.

PLANT SOUL is the vital principle of plants, or the formal principle by which the plant lives a vegetative life.

MATERIAL as opposed to spiritual means that which in its existence and operations depends on matter as a co-principle in the proper sense of the term. It may not be made of matter. Thus the vital principle of plants and animals is essentially distinct from matter (Cf. Thesis III.) yet it is **material** because, as will be proved, it requires matter as co-principle of all its actions.

ESSENTIALLY SIMPLE—that which has not **essential** parts, i. e. such parts as are necessary in order that such an object may even exist.

Thus soul and body are the two essential parts of man.

INTEGRALLY COMPOSITE that which has **integral** parts, i. e. such parts as are necessary, not that the object may barely exist, but that it may exist **in its corporeal totality**. **THUS** a man might still continue to live after several parts (integral) of his body had been removed.

Part I. (Nutrition, growth and reproduction naturally require the cooperation of bodily organs)
That which in its existence and in its operations depends on the body as a strict co-principle is material.

But the plant soul in its existence, etc. Therefore, etc.

Minor: In its operations: The characteristic operations of plant life are nutrition, growth and reproduction. But each one of these necessarily requires the strict cooperation of bodily organs.

In its existence: "operatio sequitur esse" i. e. a being's actions are proportional to its existence. If the plant soul in its existence were not intrinsically dependent on the body, neither would it be so dependent in all its operations.

Part II. (Because the plant soul is its essential form). The substantial form is essentially simple. But the plant soul is the substantial form of the plant. Therefore

Major: In cosmology it is proved that the substantial form is one of the two ultimate essential constituents of bodies.

✓ Minor: That intrinsic constituent by which a body is constituted specifically what it is, and differentiated essentially from all others is its substantial form. But the plant soul is that intrinsic constituent by which the plant is, etc., as was shown in Thesis III.

Part III. (Because plants may be propagated by mere division.) It is a well-known fact that plants can be propagated by mere division of the parent plant. To explain this fact one of three explanations must be accepted.

- i) that there were many souls in the parent plant;
- ii) or that a new soul was generated in the separated portion by the mere abscision;
- iii) or finally, that the soul of the parent plant was divided, and was therefore integrally composite.

Major: Enumeration is complete; no other supposition is conceivable.

Minor: i) There were not many souls in the parent plant as it is evident from the unity of the plant's activity. Cf. p. 17. The soul is the mere source of the plant's activity, and if there were many souls, there would not be the unity of activity.

ii) Abscission is merely mechanical action, and incapable of inducing into the separated portion a new substantial form, unless it so changes the organs and properties of the severed member that it would be no longer adapted to vegetative activity. In the present

case, this did not occur, as is manifest from the fact that after separation, the detached portion continues to live a vegetative life.

SCHOLIA

- I. The plant soul is not created by God, but **educed** from the potentiality of matter by the vital activity of the parents; hence it is **generated**.
- II. When a plant dies, its soul ceases to be. **Immortality belongs only to the human soul.**

SENTIENT LIFE

DIVISION

- I. Animal Life:
- II. The Nature of the Animal Soul:
- III. The Efficient Principle of Sensation:
- IV. Sensation:
 - a) The Requisites for Sensation:
 - b) The Essence of Sensation:
 - c) The Immediate Object of Sensation:
- V. The Senses or Faculties of Sensation:
 - a) The External Senses:
 - b) The Internal Senses:
 - c) The Sensitive Appetite:
Its Nature:
The Passions:
The Sensitive Appetite and the Will:
The Emotions.

THESIS VIII.

Brute animals are sentient and not intelligent.

BRUTE ANIMAL may be described as a living body endowed not only with vegetative life, but also with the power of local motion, a muscular and nervous system, as well as corporeal organs closely resembling those of man. Afterwards we shall give a scientific definition.

Under the comprehension of "brute animal" all animals are included, man alone excepted.

SENTIENT i. e. are capable of sensation, Cf. p. 17.

In our present thesis we do not assert that all brute animals are endowed with all the external and internal senses found in man and in certain brute animals. But we do say that in every brute

animal there exists the capacity for sensation, i. e. every brute animal has at least one or more of the various senses.

INTELLIGENT i. e. capable of perceiving not only corporeal things but spiritual ones also, not only singular objects but **universal** ones as well.

ADVERSARIES

- i) Descartes and many of his disciples falsely taught that brute animals are mere automata, devoid of all life, vegetative as well as sentient.
- ii) Sensists deny all essential difference between human intellection and mere brute sensitive cognition. Many **Evolutionists** assign to brute animals an intellect essentially the same as the human mind, though not quite so perfect accidentally.

Part I.

PROOF OF THESIS

If brute animals i) are endowed with organs naturally adjusted for sensation; ii) if they employ those organs exactly as we do; iii) if they manifest the same indications of sensation as we do; and iv) finally if they perform spontaneous actions, they are sentient.

But brute animals are endowed, etc., Therefore, etc.

- Minor:**
- i) That brute animals are endowed with organs, etc., is obvious from common experience.
 - ii) That they employ those organs, etc., is also clear from experience.
 - iii) Experience also teaches us that brute animals manifest the very same indications of sensation as we do.
 - iv) Spontaneous actions are those which arise from knowledge and appetency. But such are perceived in brute animals, e. g. in their local movements. Such movements in brute animals are neither mechanical nor automatic, for if they were they would be done in accordance with the fixed laws of mechanics, they would accordingly be perfectly uniform and constant. The very opposite is observed in the local movements of brute animals.

Part II.

If brute animals were intelligent, i) they would cognize **universal** and **spiritual** objects as well as singular and corporeal ones; ii) they would perceive the various relations existing between objects, e. g. between cause and effect, between means and end; iii) finally, they would show some progress in knowledge, science, art, etc.

But brute animals do not cognize universal and spiritual objects, they do not perceive relations nor do they reveal any progress in science, etc. Therefore, etc.

Major is evident from the intellectual activity in us.
If brute animals were endowed with a cognitive faculty essentially the same as our mind, they would show the same activity.

Minor: i) Brute animals give no sign of any knowledge of **universal** or **spiritual** objects. They even give **unmistakable indications** that they possess no such knowledge. For if they had universal ideas, they would grasp universal principles. This is obvious from our manner of proceeding; having formed universal ideas, we immediately and of necessity, by a mere comparison of the two objective concepts form universal principles. Brute animals, however, never form universal principles as is manifest from their entire way of acting; all those of the same species are not only employed in the same actions, but **all their actions are perfectly uniform.**

If they had any concepts of **spiritual** things, they would have some notion of virtue, vice, moral obligation, etc. Such knowledge however is entirely foreign to them.

ii) Brute animals do not perceive relations, e. g. of cause and effect; they never attempt to discover the causes even of effects which at times very much molest them; e. g. a dog does not try to loose his chain, though he easily could, and has often seen it done. The same holds for the relation of means to end; e. g. on a cold night a cat or dog may see the

fire going out, yet neither will make the least effort to put fuel on the fire, though they easily could.

- iii) Experience makes it clear that **among brute animals there are neither arts nor science**; they **manifest no craving for knowledge**; they never invent anything, nor do they employ the inventions of man. In certain cases, e. g. in construction of bee-hives, where they seem to follow the rules of mechanics, etc., all act in **precisely the same set way** and they have done so since the beginning of history; their ingenuity is entirely restricted to **one or two lines of action** necessary for the welfare of the individual and of the species; apart from **such action**, they manifest the greatest stupidity. Cf. Fabre, *The Hunting Wasp*, ch. ix, *The Wisdom of Instinct*, and ch. x, *The Ignorance of Instinct*.

SCHOLIA

- i) The **specific difference** between plants and brute animals is sensibility, or the capability of eliciting sensation; — rationality specifically distinguishing the brute from man. Therefore we may define brute animal **scientifically as a living body endowed with sensibility**.
- ii) With reference to the facts advanced by some in proof of animal intelligence it is to **be well remembered**:
 - a) That the alleged facts have not always been accurately observed;
 - b) Even the facts which have been carefully observed are frequently **interpreted arbitrarily**;
 - c) Not infrequently facts appertaining to distinct cases and to distinct species of animals are collectively attached to one and the same case;
 - d) If an observer should fix his entire attention on certain lines of conduct, under very definite conditions, possibly he might suspect the presence of intelligence. If this same observer will study all the actions of any particular animal, under varying conditions he will be completely satisfied that it is instinct, not intelligence, which is guiding the worker.

- e) No fact has been established which cannot be sufficiently accounted for by some of the sensitive faculties possessed by brute animals, together with training, usage and their tendency to imitate the actions of others.

Later, we shall examine these sensitive faculties, instinct included.

Cf. Muckermann, S.J., *The Humanizing of the Brute*; Wassmann, S.J., *Instinct and Intelligence*; Maher, *Psychology*, Supplement, A, edit. 7, pp. 579-594.

THESIS IX.

Though brute animals are truly vegetative and sentient, they have but one soul, which is material, essentially simple, and, at least in less perfect animals, integrally composite.

St. Q.

Two distinct questions are included in the present thesis.

i) Since brute animals truly exercise the functions of both vegetative and sentient life, have they two souls—one vegetative and the other sentient—or have they only one?

ii) Having established the unicity of the soul in each brute animal, we inquire into its nature.

An explanation of the terms used in the thesis will be found under Thesis VII, pp. 19, 20.

We say “at least in less perfect brute animals” the soul is integrally composite, understanding by less perfect those brute animals which are of a very simple organization admitting very little variety of organs and parts. It is controverted whether or not the same integral composition belongs to the souls of all brute animals. Most probably it does, though many authors maintain the integral simplicity of the souls of more complex brute animals.

PROOF OF THESIS

Part I. (Because each brute animal is one by nature)

In each living body which has natural unity there is but one soul.

But each brute animal has natural unity.

Therefore, etc.

Major is evident from the **unity of the vital activity** in such a living body as was already explained when there was question of plant life. Cf. p. 17.

Minor is clear from the **unity of the vital activity**; while the animal performs a most wonderful variety of actions, still all the vital actions tend to **one and the same end**—the good of the individual animal and of the species. Thus the vegetative activities contribute to the well-being of the animal's sentient life and vice-versa. Cf. Shallo, pp. 241, 242.

PARTS II, III and IV.

With a few verbal changes, the proofs already given for the materiality, essential simplicity and integral composition of the plant soul also establish parts ii, iii and iv of our present thesis. Cf. pp. 19, 20. And in Thesis X we shall demonstrate that sensation (in the brute as well as in man) is elicited by soul and body as coefficients in the proper sense of the term.

SCHOLIA

i) The soul of the brute is generated not created; and when the animal dies, its soul ceases to exist. Cf. p. 20 where will be found the same doctrine relative to the plant soul.

ii) Though each brute animal has only one soul numerically, still that soul is potentially two-fold, i. e. one and the same soul sufficiently accounts for both vegetative and sentient phenomena. Hence it is formally sentient, and potentially or virtually vegetative.

THESIS X.

In Man the senses are faculties neither of his body alone nor his soul alone, but of both as constituting one composite nature.

St. Q.

In our present thesis there is question of the **efficient cause or eliciting principle of sensation**.

We reject two false opinions, and establish the only true one.

SENSES—both external and internal: no exception. Later, we shall study these senses individually.

In Man—Explicitly we treat of sensation only in man. In a Scholion we shall show that the same doctrine applies to sensation in brute animals.

NEITHER OF HIS BODY **ALONE** — notice the word “**alone**”: the senses are faculties of the body, but not of the body **alone**. This is laid down in opposition to the tenets of Materialists, who deny in living beings the existence of a vital principle, and who vainly attempt to account for sensation by mere material forces.

NOR OF HIS SOUL ALONE—Notice the word “**alone**”—as above. **THIS** part is against those authors, who, due to an improper conception of the union of soul and body in man, ascribe sensation to the soul alone, the body being made merely a **condition**. Thus Descartes, Kant, etc.

BUT OF BOTH AS CONSTITUTING ONE COMPOSITE NATURE:—

i. e., sensation is elicited or produced by the **animated body**. The soul alone is the **formal or dynamic principle** of sensation. When substantially united with the body, it **vitalizes, energizes** the body, in such a way, that in virtue of the union, soul and body constitute **one composite principle** which produces all acts of sensation.

N.B.—In our present thesis we abstract from a question closely connected with the topic under discussion, namely, granted that sensation is produced or elicited by the **animated body** as one composite principle, is sensation elicited in the brain alone, or in the different end-organs? A brief answer to this latter inquiry will be found among the Scholia.

PROOF OF THESIS

Part I. (Matter and its forces can elicit no vital action)

If no vital action can be elicited by matter and its forces, the senses cannot be faculties of man's body **alone**.

But no vital action can, etc. Therefore, etc.

Major: That **sensation involves a vital action** is obvious from our experience, and from common consent. The same will be established explicitly in Thesis XII. In consequence, the senses or faculties of sensation cannot be faculties of man's body **alone**.

Minor: Evident from Thesis III. pp. 7 and 8.

Part II. (Otherwise sensation would not be something **extended**, neither could we explain the vast difference between sensation and thought.)

If the senses were faculties of the soul **alone**, sensation would not be something extended, neither could we explain the vast difference between sensation and thought. But sensation is something extended, and we must explain, etc. Therefore.

Major: a) The human soul is integrally simple; consequently, its faculties, being necessarily proportionate to the nature whence they proceed, are also integrally simple. And if the faculty is integrally simple its accidents, actions included, cannot be extended.

b) If the faculties of both sensation and of thought appertained to the soul **alone**, both faculties would be equally simple and spiritual; and since both are cognitive, both would have the same object. Hence their difference, if at all real, would be negligible.

Minor: a) Evident from experience; sensations of cold, heat, pain, etc., extend over large or small areas of our bodies.

b) The senses perceive only individual corporeal objects and not even the inner nature of these; whereas the intellect apprehends corporeal and spiritual, individual and universal objects, in their inner nature as well as in their sensible qualities.

Part III.

If in man the senses are faculties neither of his body alone nor of his soul alone, they must be **faculties of both as constituting one nature**.

But in man the senses are faculties neither, etc. Therefore.

Major: a) They must be **faculties** of both, for there is no other possible supposition, as is manifest from parts i and ii.

b) "**As constituting one composite nature**": — the body alone cannot produce a portion of a sensation for that part would be vital, and matter alone cannot produce something vital. Neither can the soul **alone** elicit a part of a sensation, since that part would necessarily be extended. Hence since sensation is one undivided vital operation, it must be produced by man's body and soul as **forming one composite nature**.

SCHOLIA

i) In brute animals the senses are faculties of both body and soul as constituting one composite nature. From what has been said above it is clear that the body alone of the brute animal cannot elicit an act of sensation. Neither can the soul **alone**, since otherwise that soul would be spiritual and intelligent. But in Thesis VIII we proved that the soul of the brute is not intelligent.

ii) Most probably **external sensations** are elicited **not in the brain but in the end organs**, e. g. in the eye, ear, etc. This view is most in accord with the data of consciousness and with common consent. Experiments have not disproved it; on the contrary, they have gone a far way towards establishing it. Modern writers on physiology should be read with close attention: many of them dogmatically assert that external sensations are elicited only in the brain. But what do they understand by a sensation? The mere cerebral reaction corresponding to the excitation of the end-organ, or the conscious vital, intentional representation of some corporeal object? By a sensation most of them understand the mere cerebral reaction: they admit that such reaction is not conscious, and that we become conscious of our sensation only when the different nerve-paths convey the impulse back to the end-organs. We can readily allow all this. But in psychology, we understand by sensation the conscious, vital representation in a living body of some corporeal object. Such representation we maintain, with high probability, is had not in the brain but in the end-organs of the various senses.

Internal sensations are elicited in the brain.

THESIS XI.

In order that the senses may be adequately and proximately disposed to elicit a sensation, it is necessary that the object produce in the senses an intrinsic determinant.

St. Q.

In the present thesis we are examining the prerequisites in order that the senses be completely equipped for eliciting sensation.

Under proper conditions, the sensible object acts upon the sense-organ, thus stimulating it to action. At present

we are not concerned about the physiological process involved in this excitation of the sense-organ; we are speaking of the **intrinsic determination of the sense** as such, and we say that without such excitation the sense is not adequately and proximately disposed to elicit a sensation.

INTRINSIC DETERMINANT, i. e., an intentional and virtual image of the sensible object, impressed on the sense by the object, and proximately determining the sense to perceive a definite object.

Explanation:—We say:

- a) **Image** because the object itself, or any of its parts does not enter the sense, but a representation of the object in the sense.
- b) **Intentional**: the representation is not of the same specific nature as the object, but it is a representation produced in the vital faculty which proximately disposes the sense for perception.
- c) **Virtual** as opposed to formal. A formal image represents the object as it is in the order of reality; a virtual image is the ultimate complement for forming a formal image. A little seed is the virtual, not the formal, representation of a plant.
- d) **Proximately determining**:—of its nature the sense is not determined to perceive this object rather than that object; the intrinsic determinant impressed by the object completes the image power of the sense, and thus proximately disposes it for sensation.

N.B. In order to establish our present thesis, we must show:

- i) that the **object must act on the sense** in order that the sense elicit a sensation.
- ii) The effect or result of the object's action is **an intrinsic determinant of the sense**, i. e., a quality intrinsic to the sense which removes the indifference of the sense relative to this or that object;
- iii) this intrinsic determinant is **at least a virtual image of the object**.

ADVERSARIES

All those who deny that sensation is an action of the soul and body as constituting one composite nature. Cf. Thesis X.

PROOF OF THESIS

Part I.

From experience we know with certainty that we never have a sensation without an object, and that the sensation varies in intensity with the distance and size of the object. Thus the senses do not perceive the same object, nor does sensation depend on the senses alone. Such a constant and uniform relation manifestly proves that the object in some way concurs in sensation, not indeed by eliciting the sensation but by influencing or acting on the sense. This will appear still more clearly from the second part.

Part II.

N.B. Indifference is the absence of determination in a being which is capable of such determination. The indifference is passive if the being in which it is is incapable of determining itself, it is intrinsic if a being is incapable of determining itself precisely because it lacks some intrinsic natural reality.

ARGUMENT

If the senses are passively and intrinsically indifferent relative to the representation of this or that object, and if this indifference is removed by the action of the object on the senses, the effect of the object's action is an intrinsic determinant of the sense.

But the senses are passively, etc. Therefore, etc.

Major: If the senses are passively and intrinsically indifferent, in order that the indifference be removed the senses must receive an intrinsic determinant. And if this determinant results from the action of the object, obviously our major is unassailable.

Minor: a) Senses are passively indifferent, as is clear from the fact that they cannot elicit a sensation unless acted on by the object perceived.
b) Senses are intrinsically indifferent, for otherwise the action of the object would be a mere occasion or condition for sensation. But the action of the object is neither a mere occasion nor a condition for sensation. The reason is this: an

occasion or a condition never posits a formality in the effect produced; on the contrary, the object does posit a formality in the effect produced, i. e., it posits something of itself in the sensation.

- c) The action of the object removes this indifference since besides this action of the object nothing further is required in order that the senses elicit sensation.

Part III.

The intrinsic determinant produced by the object in the senses enables the senses to produce within themselves a living and formal representation of the object. Hence it must be at least a virtual image of the object, for otherwise it could not impart such a power to the senses: *nemo dat quod non habet*.

NOTANDA

- i. The intrinsic determinant of which we have spoken, is called the **Species Sensibilis Impressa**, i. e., the sensible image impressed on the senses by the object.
- ii. This intrinsic determinant is not the sensation itself, but a **prerequisite for sensation**.
- iii. The senses, by their very nature, are determined in general so far as a perceptive faculty goes, to represent their respective object; but they are not by their nature determined to cognize this or that particular object. Sensation always has to do with a definite, particular object; hence the necessity of an intrinsic determinant.

THESIS XII.

Sensation involves an act of the sense after the latter has been intrinsically determined by the object, which act is per se immanent, and which produces in the sense a formal representation of the object.

St. Q.

The present thesis studies the nature of sensation itself. And concerning it we say: i) Sensation does not consist in the passive reception of the intrinsic determinant (Cf. Thesis XI.), but it implies a real act of the sense after the latter has been determined by the object. ii) By means of this act, the sense produces in itself a formal representation of the object.

PROOF OF THESIS

Part I.

A vital act is per se immanent.

But sensation is a vital act. Therefore, etc.

Major: evident from Thesis I.

Minor: a) Obvious from common consent, and from the uniform manner of speaking.

b) Consciousness tells us not only that sensation occurs within us, but also that it arises from our own activity.

If sensation implied no activity on our part, sensation should take place also in those who are sleeping.

c) Sensation is a phenomenon proper to the animal as such, and by means of it we conclude with certainty that an animal is alive. Hence sensation must necessarily include an act which is per se immanent, since a vital act is synonymous with an act which is per se immanent.

Part II.

If in sensation the sense represents according to some formality the object as it is in itself, a formal representation of the object is produced.

But in sensation, etc. Therefore, etc.

Major: To represent, according to some formality, an object as it is in itself, is precisely what is understood by a formal representation of that object.

Minor: From Criteriology and from experience, it is manifest that when we have a sensation we represent to ourselves, according to some formality, the object as it is in itself.

SCHOLIA

- i. In Scholastic philosophy, the sensation is frequently spoken of as the *species sensibilis expressa*.
- ii. Sensation is cognition in the strict sense, since cognition is nothing else than a vital and intentional representation of an object.
- iii. That which the external sense immediately perceives is the sensible object which stimulated it to elicit a sensation. This is obvious from experience which tells us that when we have a sensation immediately

we cognize the sensible and nothing else. Hence it is erroneous to maintain, as some do, that by external sensation we **immediately** perceive our own sensation, and the sensible object only **mediately**.

THE EXTERNAL SENSES

It is evident that in us there are various senses. A detailed study of the structure and nature of each one of these appertains to empirical psychology. For our present purpose a **very brief outline** must suffice.

It is generally conceded that we have as many external senses as there are different formal objects attainable by such senses. On this basis, it is customary to speak of five external senses, namely, sight, hearing, taste, smell and touch. Most probably the last named is a **multiple sense**, comprising several distinct senses.

SIGHT

The eye, or more exactly, the rods and cones of the eye, is the **organ** of sight. The **proper object** is color or more exactly a **colored** extended object.

HEARING

The ear, and in particular, the Organ of Corte, is the organ of hearing; sound is the **proper object**.

TASTE

The caliculi gustatorii (or gustatory cup) situated within the mouth are the organ of taste. Flavors, not precisely of the external objects placed inside the mouth, but of the mixture resulting from the fusion of those objects in solution with saliva, are the **proper object** of the sense of taste.

SMELL

Olfactory cells located in the cutaneous membrane lining the inner surface of the nose form the **organ** of this sense; odors are its proper object. Due to the communication of the nostrils with the mouth, objects placed in the mouth are perceived often by both the sense of taste and the sense of smell, and not infrequently we confuse the two sensations. The olfactory cells are easily fatigued; in consequence, if the same odor continues to modify the organ, after a short while it is no longer perceived by the sense of smell.

TOUCH

As we observe above, most probably the **sense of touch**

is multiple. It would seem that it perceives objects which are specifically distinct, and indeed by means of different organs.

i. **TOUCH PROPERLY SO CALLED, or PASSIVE TOUCH, or SENSE OF CONTACT.**

Its **organ** are cells located in the dermis, its **proper object** is the pressure exerted on the skin. Through this sense we perceive the softness or hardness, roughness or smoothness of the body which is exerting pressure on us.

The delicacy of the tactile sense varies in different parts of the skin. Most frequently muscular sensations and temperature sensations are combined with tactile feelings, therefore pure tactile sensations are rare. Cf. Martin, the Human Body.

ii. **The Temperature Sense.**

By this we mean our faculty of perceiving cold and warmth. Its **organ** is the whole skin, the mucous membrane of mouth and fauces, pharynx and gullet, and the entry of the nares. Cf. Martin, op. cit.

iii. **The Muscular Sense.**

By means of this we perceive contractions and expansions of the muscles and tendons; it informs us of our body's rest or motion; of its position and equilibrium relative to gravitation; it also assists us in estimating the weight of an object. Physiologists are not agreed in explaining the nature and organ of this sense. Cf. Maher, Psychology (Edit. 7) pp. 75-78.

iv. **The Vital Sense or Coenaesthesia.**

By means of this we perceive: a) various modifications resulting from vegetative functions; e. g. hunger, thirst, nausea, satiety, etc.; b) the pleasure or pain which is experienced in the healthy or disordered condition of corporeal organs, as well as the agreeable or disagreeable feelings which may accompany our external sensations. Cf. Maher, Psychology (edit. 7.) p. 69.

THE INTERNAL SENSES

Besides the external senses, man and the more perfect brute animals are endowed with several other senses, called the **internal** because their organs lie hidden within

the body. These senses are the *sensus communis* or central sense, the imagination, the *vis aestimativa* or instinct and the sensitive memory.

SENSUS COMMUNIS or CENTRAL SENSE

It is an organic faculty by which are perceived sensitive modifications, together with the sensible objects cognized by each of the external senses. Each of the external senses perceives its own proper object; the central sense, perceives, unites and distinguishes the sensible qualities in one and the same concrete object. Thus the sense of sight may perceive an object as white, the sense of touch, as hard, the sense of taste, as sweet, etc. When these several data are referred to the central sense, the sentient subject becomes aware that it is perceiving one external object which is white, sweet, hard.

Hence it is known as the *sensus communis* because it perceives mediately all the various qualities perceived **individually** by different external senses. **Immediately** and explicitly, it perceives all external sensations in so far as they affect the sentient subject; **implicitly** it is aware of its own actions. Its organ is situated in the hemispheres of the brain.

From experience the **existence of such a faculty is manifest**. For instance, animals clearly distinguish between different sensible qualities; they know that several such qualities are found in the same subject, and they are aware that they perceive such qualities.

That the **central sense is really distinct from the external senses** is seen in this: since the central sense distinguishes between various sensible qualities, e. g., between the color and the taste of an object, obviously it perceives these different qualities; otherwise how could it distinguish between them? But none of the external senses perceives these different qualities, for each external sense is strictly confined to the perception of its own proper object.

Most probably the central sense is really identified with the **faculty of sensitive consciousness** of that faculty by which the animal experiences as his own the sensitive modifications (namely, actions of external and internal senses and those of the sensitive appetite) which take place within him. That animals have such consciousness

is evident from observation and from our own experience. The existence of a faculty of sensitive consciousness really distinct from the central sense cannot be proved.

THE IMAGINATION

The imagination is an internal sense which retains and reproduces the past experiences of the central and external senses.

Retentive, reproductive and creative imagination.

Since cognition implies the concurrence of the object, a faculty which perceives objects in their absence must necessarily **retain the intrinsic determinant** produced by the object when the latter was actually present. Hence the imagination retains such intrinsic determinants, and under this aspect it is called the **retentive imagination**. But as we know from experience the imagination also intentionally reproduces (or represents in a vital manner) absent objects, and under this respect it is known as the **reproductive imagination**. In man, due to its intimate relation with the intellect, the imagination has a third function; it may combine into one various past experiences of the central and external senses, or it may split up one such past experience. It is then known as the **creative imagination**. Thus the imagination can recall past experiences singly, e. g., the sensations of sound, color, etc., or it can form new representations by combining into one many such past experiences, e. g., representations of walking trees, or rivers of gold, etc. The former is the reproductive imagination; the latter the creative. In us, rarely does the imagination reproduce past experiences with precisely all the same circumstances under which they were first had. That man is endowed with an imagination is clear from daily experience. The same is true of the more perfect brute animals, since their conservation and welfare require that they cognize sensible objects in the absence of such objects. Otherwise how could they seek such objects? Moreover, such animals give manifest signs that they possess an imagination.

Very imperfect animals, e. g., those that cannot by local motion reach absent objects, seem to have no imagination. For in such animals, an imagination would be **useless**.

The proximate causes which determine the imagination to reproduce sensible representations are these:

i) **The internal condition of the body**, inasmuch as it affects the brain. The brain is the organ of this faculty; hence an impression however produced on the living brain,

similar to that which accompanied a given sensation of the imagination, is likely to recall that sensation. Hence the influence of the various states of the nervous system on the imagination; hence, too, the varied unconnected series of phantasms (actions of the imagination) which occur in dreams or in cases of violent fever.

ii) **The association of phantasms:** In this connection we have what are known as the **Laws of Association** or of Mental Suggestion, namely,

a) **The Law of similarity or affinity in character:** the imagination in the presence of any phantasm tends to reproduce its like in past experience;

b) **The law of contrast or opposition in character:** The imagination in the presence of any phantasm tends to reproduce contrasted phantasms previously experienced;

c) **The law of contiguity** comprising association in space and time: the imagination in the presence of any object or event, tends to recall other objects and events, formerly closely connected in space or time with that now present.

In addition to this triple bond of association, it is to be remembered that each one's subjective dispositions, temperament, health, habits, etc., largely influence the imagination and its actions. The human will is likewise a most important factor in determining the images which will fill our imagination and our thoughts. Finally angels, good and bad, as well as God can arouse dormant sensible images.

N.B. i. The association of **Ideas or thought** presupposes, and depends upon, the association of our phantasms; as the phantasms, so the thoughts. Hence the practical importance of guarding our imagination to keep it occupied with healthy and useful images.

ii. The so-called laws of association admit of frequent exceptions; in consequence, they are not laws in proper sense of the term.

iii. If one should inquire why it is that a phantasm tends to recall a similar one in past experience, etc., or if he should ask how precisely one phantasm influences another, no certain answer can be given. Many theories have been invented, but thus far they have been arbitrary, they have not been proved, and they do not explain all the phenomena requiring explanation.

iv. Modern non-Catholic writers very often confound the imagination and the intellect, and erroneously speak of phantasms as ideas.

- v. About the dangers of imagination, illusions, hallucinations, dreams and reverie, Cf. Maher, *Psychology*, pp. 170-178.

INSTINCT

Instinct is an internal sense by which animals perceive in sensible objects certain aspects which exceed the perception of the external senses; e. g., aspects of usefulness or hurtfulness for the individual or the species. **THUS** by instinct the sheep perceives in the wolf something hurtful to it. This perception is immediately followed by an impulse of the sensitive appetite, which impulse in turn moves the animal to perform certain actions which are beneficial for it, or to omit actions which would be injurious. All such actions are styled **instinctive**. Hence instinct is a natural aptitude which guides animals in the unreflecting performance of complex actions useful for the preservation of the individual or of the species.

Strictly speaking, instinct is a **perceptive** faculty.

But the name instinctive is also applied to all such actions of the sensitive appetite and motor powers as result from perceptions of instinct. The immediate object to which any instinctive activity is directed as well as this activity itself is perceived by the animal, but the latter does not perceive the suitableness or final result of such actions.

The **existence of instinct** is manifest from observation and experience. Instinctive actions are **generally uniform** in all individuals of the same species. They are performed with necessity, not freely, and they require no previous deliberation or experience.

The range of instinct is very limited; to what is useful or hurtful for the preservation of individual or the species. But in some animals there would appear to be an instinctive impulse to self-destruction for the sake of preserving other species. To say that a certain action is due to instinct is not to **explain** the action, but to **distinguish** it from certain other activities, and to group it with others. **About the inner nature of instinct, very little is yet positively known.**

Cf. Wasmann, S.J., *Instinct and Intelligence*, especially chapters iii. and iv.; Muckermann, S.J., *Humanizing of the Brute*; Gerard, S.J., *Science and Scientists*, pp. 101-130; Fabre, *The Hunting Wasps*, ch. 9, 10, 20.

THE SENSITIVE MEMORY

Sensitive or sensible memory is that faculty by which are recalled former sensitive experiences and their objects. Past sensitive experiences are the **primary object** of memory; the objects of those same experiences form the **secondary object** of memory.

Is there the element of **recognition** in sensitive memory? In others words, does the animal recognize a past experience **precisely as past**. Such recognition is certainly had in **intellectual** memory. Sensitive memory cannot perceive past time in the abstract, i. e., it cannot perceive past time. Still it can perceive a past experience as past experience in a **concrete manner**, i. e., it can be aware that the object which it now knows had been formerly perceived. This element of recognition is the characteristic feature of memory as distinct from imagination.

From experience it is obvious that animals have memories. And their memory is sensitive or organic, i. e., necessarily requiring the body as a coefficient in the strict sense, as is clear from observation since animals know only singular, material objects. The same is manifest from the fact that the animal soul is material. Cf. Thesis IX. pp. 25-26.

The brain is the organ of sensitive memory.

The sensitive memory is **spontaneous or automatic**, never voluntary, i. e., it is incapable of **recollection**. The operation of recollection or reminiscence is compared by St. Thomas to that of syllogising, a progress from the known to the unknown, from the remembered to the forgotten. Under the influence of the will and intellect, the intellectual memory often deliberately endeavors to recall some past experience, when such experience is not remembered spontaneously. This is done by means of the association of ideas and phantasms. Such a process is known as reminiscence or recollection, and is distinct from spontaneous memory which implies no such research.

Are the internal senses thus far described really distinct from one another, or are they only different aspects of one and the same interior sense?

Some authors have maintained that all four are really distinct. Many others, with greater probability, teach that the four internal senses are only four aspects of one and the same sense. No cogent argument has been advanced in de-

fense of a real distinction. Moreover the various functions of the internal senses are so intimately related that it would seem that all belong to really one and the same sense.

THE SENSITIVE APPETITE

APPETITE

[In general, appetite means the tendency of a being towards what is good or suitable to it.] Hence all forms of internal inclination, comprehending alike the natural tendencies or affinities of plants and inorganic substances which impel them towards what is suitable to their nature, and the conscious attraction in sentient and rational beings towards what they perceive as good, come under the general heading of "appetite."

[The formal object of appetency in this broad signification is the good, under which term is comprised not merely the pleasant, but everything in any fashion convenient or suitable to the nature of the being thus attracted.] Continued existence, felicity, development and perfection, together with whatever is apparently conducive to these ends, are all in so far good, and consequently a possible object of appetency. [In a secondary sense it may be said that evil is included in the object of appetite. Evil is opposed to good; in consequence the appetite flees or shrinks from it.] Hence whatever is repugnant to good is a mode of evil, and therefore a ground for aversion, or the secondary activity of appetite.

INNATE AND ELICITED APPETITE

If a being's tendency to what is good for it arises, not from any previous knowledge of the good, but from the very nature of the being, the appetite is said to be **innate, natural or connate**; if the tendency presupposes knowledge as a necessary condition, the appetite is called **elicited**. There is no consciousness of the innate appetite; on the contrary, the animal is conscious of every action of the elicited appetite. The innate appetite is not a special faculty distinct from the nature of the being; the elicited is a special faculty, namely, an organic faculty by which the animal tends to good or flees from evil as **perceived by sense**. The innate appetite is common to all creatures; the elicited is restricted to such creatures as are capable of cognition.

SENSITIVE AND RATIONAL APPETITE

Sensitive (or senuous) has its immediate source in sense cognition; **Rational** presupposes intellectual knowledge. Hence the former is a tendency to good as perceived by sense; the latter, as cognized by intellect. Per se, the sensitive appetite tends only to the pleasant or delectable good. And in order that it may tend to such good, it is required that the object be perceived precisely as delectable or pleasant by the being's faculty which is known as **instinct** or **vis aestimativa**.

THE EXISTENCE OF SENSITIVE APPETITE

That animals have an elicited appetite is clear from observation and from our own experience. Animals give unmistakable signs of joy, fear, sadness, etc., all of which suppose an elicited appetite.

That such appetite is sensitive or organic is manifest from the fact, established in Thesis VIII, that animals are not intelligent.

Consciousness also tells us that we have a sensitive appetite, for we are immediately aware of its movements.

THE PASSIONS

The word "passions" has many meanings. In the broad sense, it signifies any modification of a subject; sometimes it denotes such modification with the added notion of some alteration in the subject affected. At times it is the name given to a very intense or vehement movement of sensitive appetite.

At present we use the word to designate an operation or movement of the sensitive appetite whether tending to good or fleeing from evil. Such movement, especially if vehement, is generally accompanied by some corporeal alteration; hence the reason for the name.

ELEVEN KINDS OF PASSIONS

The division of the passions into eleven classes arises from the various relations which the sensitive appetite may hold to good or evil. We may look at good or evil merely as such, or we may consider them precisely in as much as the good is difficult of attainment and the evil hard to avoid. If we consider good and evil simply as such, again we may abstract from the notion of time or we may look upon each either as present or future. There is no impulse of the appetite in the direction of good or evil as past; if the appetite does tend to some

good which de facto is past, or flees from some evil which is actually past, it is because such good or evil still continues to be good or evil or at least is perceived as such.

If we consider **good and evil simply as such**, abstracting from the correlation of time, good begets **love**, evil, **hate**. If the same objects are viewed as future, good generates **desire** and evil **aversion**; if they are looked on as actually present, good gives rise to **delight or joy**, evil to **sadness**.

When the appetite is concerned with good which is difficult of attainment or with evil which is hard to avoid, the difficulty may be apprehended as surmountable or otherwise; if surmountable, **hope** takes possession of the appetite, when there is quest of good, and **courage** if the object is evil. If the difficulty is apprehended as insurmountable, the appetite despairs of the good and fears of the evil. If such an evil is actually at hand, **anger** results. There is no corresponding movement relative to good, since good actually present or possessed cannot appear to be in any sense arduous.

BENE NOTANDA

- i. The passions are **natural**; they arise from our complex nature, and by their nature they tend to **physical**, not moral good. Hence they are physically good and form a part of our human nature.
- ii. Viewed **morally**, the passions are neither good nor bad; they are indifferent, and become good or bad in proportion as they obey or disobey the dictates of right reason.
- iii. **Love is the root or source** of all other passions. It is due to complacency in good (love) that absent good begets desire, present good, delight, together with hatred, aversion and sadness with respect to whatever removes or opposes the object loved. The same is true of the five passions relating to good apprehended as difficult of attainment, and evil as hard to avoid.

And because the senses always perceive good or evil in the concrete, i. e., either as present or future, the passion of love is never found alone, but is always accompanied with joy or desire. For the same reason the passion of hate is always joined with aversion or sadness.

THE SENSITIVE APPETITE AND THE WILL

These two faculties do not act in isolation—there is constant action and reaction.

I. The influence of the sensitive appetite on the will.

- a) Because both faculties are radicated in the same soul, the impulses of the sensitive appetite indirectly affect movements in the will; indirectly, i. e., in so far as the impulses of the sensitive appetite directly influence the imagination, and inasmuch as the same impulses are perceived by the intellect. And since the sensitive appetite depends largely on our bodily condition—on health, sex, age, etc., the same factors indirectly influence the will.
- b) Again, the sensitive appetite, especially when its movements are vehement, dominates the imagination; it fixes the latter in the contemplation of the objects towards which the sensitive appetite tends, impels the imagination to exaggerate or magnify the same, and withdraws its attention from opposing objects. All this reacts indirectly on the will through the intellect.
- c) Not infrequently the sensitive appetite positively impedes and resists the will, and even draws the will indeliberately towards the same object. At other times by its cooperation it is a great help to the will, and very much facilitates and intensifies the operation of the will.

The harmonious coalition of both appetites forms the ideal condition proper to man. The will is the superior faculty, the sensitive appetite is subordinate.

II. The influence of the will on the sensitive appetite.

- a) The will can rule and direct the senses, and thus can control the impulses of the sensitive appetite. However, such control of the will is not absolute or despotic; rather it is political, much like the power of the ruler over his free subjects.
- b) Despite the influence of the will, the sensitive appetite can and does revolt. This is to be ascribed to the fact that sense action, and in consequence the movement of the sensitive appetite, depend largely on corporeal conditions over which the will has no control.

EMOTIONS

This name is often given to any impulse either of the sensitive or of the rational appetite, especially when such impulse is gentle and involuntary. However in English, by emotion we more commonly mean the pleasurable or painful aspect of all species of vital activity; it implies a complex state of cognition and appetency in which the latter element is predominant, the cognition is frequently obscure.

We often speak of the emotions as feelings or sentiments. There is no ground for introducing a distinct faculty or rather several distinct faculties to account for the emotions. Ultimately all can be reduced either to impulses of appetency, or to sensible perceptions, or to obscure intellectual cognition. Generally, emotions are a complex state resulting from obscure cognition and intense appetency.

In evaluating the emotions, two extreme views are to be shunned:

- a) Stoical apathy, which fancies that all emotions are evil, and to be completely suppressed. Such an attitude is naturally impossible for we cannot refrain from such impulses. It is also **imprudent**, for our emotions can be of great assistance to our free will and to the practice of virtue.
- b) The opposite extreme; an excessive evaluation of the emotions to the neglect of the will and intellect. In religion, education, civic life, etc., mere feelings or obscure longings too often take the place of clear intellectual convictions and efficacious volitions. Lack of clear thinking and virile constancy is the inevitable result.

SENSITIVE APPETITE AND MOVEMENT

The operations of the sensitive appetite form the principle by which are proximately determined all the local movements which the animal consciously makes. Appetency expresses itself in movement. The animal stirred up by feeling, walks, runs, swims or flies in pursuit of its food. And man, too, is constantly moving one or other of his limbs, or organs, to gratify some need or desire. Cf. Maher, *Psychol.*, pp. 210-220.

THE ORGAN OF THE SENSITIVE APPETITE

We said that the sensitive appetite is organic. What is its organ, i. e., in what part of the body does it reside and by the cooperation of which does it function?

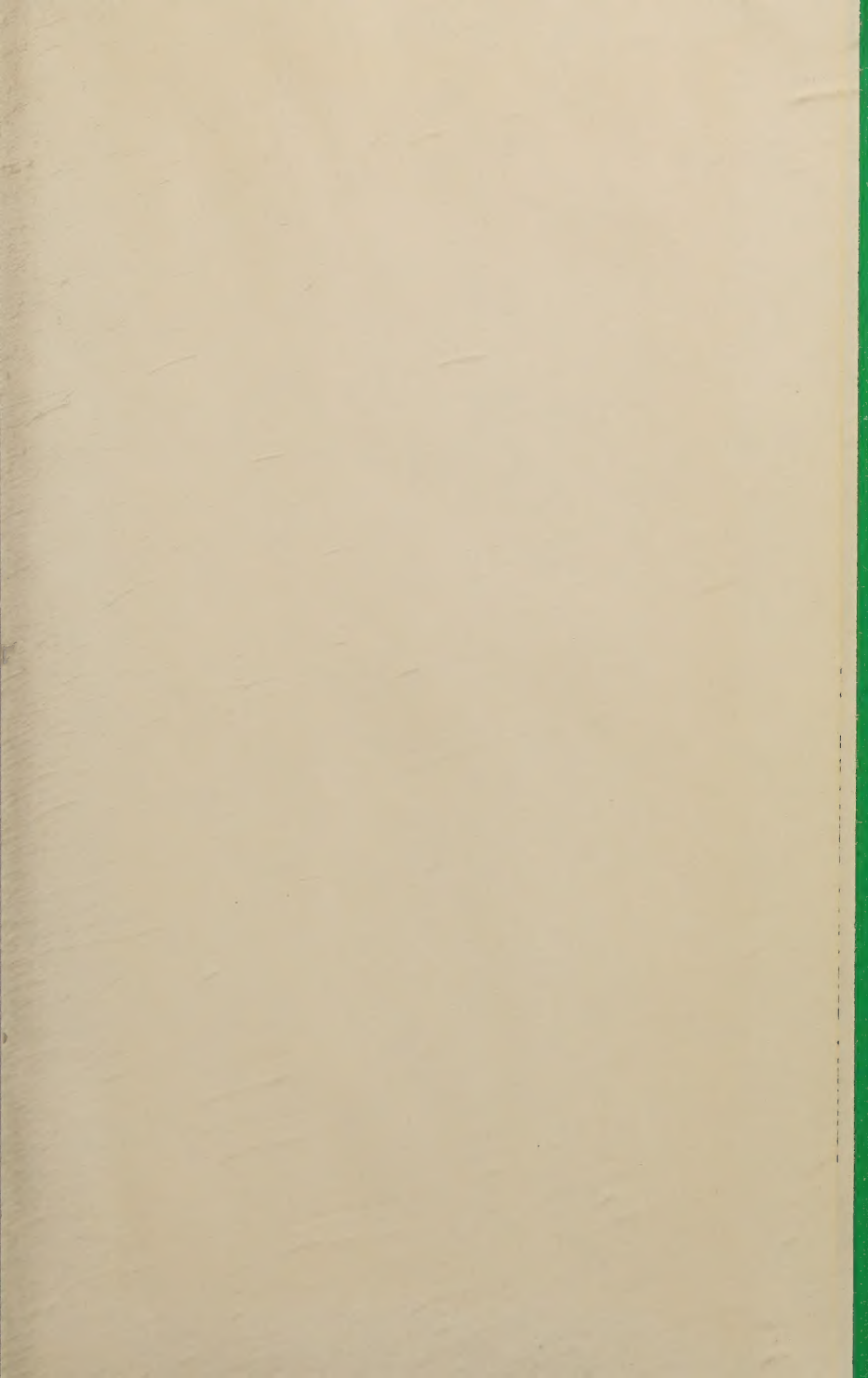
All agree that the heart is at least the organ which manifests the workings of this appetite.

Experience clearly shows that sensitive impulses, especially when vehement, constrict, dilate, accelerate or retard the heart and its movements.

It is controverted whether or not the heart is also the eliciting organ. Many maintain that the brain immediately concurs in sensitive impulses. Others, with higher probability, teach that the heart is also the chief eliciting organ for they include likewise the nervous system, especially that portion of the large sympathetic nerve which resides in the heart. This opinion seems more in accord with consciousness, with the common universal way of speaking which ascribes all the movements of the sensitive appetite to the heart, and finally is confirmed by the fact that the impulses are received in the heart and greatly modify it.

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